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Short Note

The boundaries of reciprocal cooperation

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Abstract

The current research examines the role of social value orientation in determining the extent to which individuals are inclined to reciprocate cooperation exhibited by others perceived as either honest, intelligent, or unintelligent. Results revealed that individuals with prosocial orientation reciprocated high levels of cooperation regardless of other's characteristics. Individuals with prosself orientation (i.e. individualists and competitors) exhibited some reciprocal cooperation toward others perceived as honest, yet took advantage of others perceived as intelligent or unintelligent. These results suggest that proselves can be motivated to reciprocate cooperation by others if they have faith in others' benign intentions and trustworthiness. © 1998 John Wiley & Sons, Ltd.

INTRODUCTION

How do we respond to others who have been helpful to us? Do we reciprocate such helpfulness, or might we be somewhat tempted to exploit such helpfulness, and not exchange this favour in return? Tendencies toward reciprocal cooperation (or reciprocal altruism) have been claimed to be a ubiquitous and functional approach to interpersonal relationships (cf. Gouldner, 1960), particularly when these relationships are challenged by social dilemmas (i.e. conflicts of self-interests and joint interest; cf. Axelrod, 1984; Komorita, Parks, & Hulbert, 1991). We propose that tendencies toward reciprocal cooperation are at least partially affected by individual differences in social value orientation (i.e. preferences for particular distributions of outcomes for

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self and others). Congruent with this claim, extant research reveals that individuals who are inclined to maximize joint outcomes and minimize differences between own and others' outcomes (i.e. prosocials) respond cooperatively to others who consistently exhibit cooperation; moreover, they develop benign impressions of such others (i.e. see them as honest and sincere). Individuals who are inclined to maximize their own outcomes either in absolute sense (i.e. individualists) or relative to other's outcomes (i.e. competitors) respond noncooperatively to others who consistently exhibit cooperation; moreover, they develop less benign impressions of such others (i.e. see them as somewhat honest and sincere, but otherwise as unintelligent and ignorant; cf. Kelley & Stahelski, 1970; Kuhlman & Marshello, 1975; Liebrand, Jansen, Rijken, & Suhre, 1986).

Does this evidence imply that proselves (i.e. individualists and competitors) never reciprocate cooperation and that prosocials always reciprocate cooperation? Recent studies suggest the importance of personality impressions regarding the interdependent other (Van Lange & Kuhlman, 1994). Prosocials exhibit the same level of cooperation as they expect from others, and such tendencies toward 'expectation-based' reciprocity do not strongly depend on perceived characteristics of others. Prolselves expect cooperation from others perceived as honest as well as from others perceived as unintelligent, and tend to reciprocate when cooperation is expected on the basis of other's honesty but fail to do so when cooperation is expected on the basis of other's lack of intelligence.

How can this finding be understood? First, because honesty is clearly a more desirable attribute than unintelligence, it is possible that impressions of other's desirable attributes promote reciprocity. Second, honesty and unintelligence represent two different dimensions. Honesty is strongly related to benign intentions and trustworthiness (i.e. a dimension of social desirability), whereas unintelligence is largely unrelated to benign intentions and trustworthiness (i.e. it is related to a dimension of intellectual desirability; cf. Rosenberg & Sedlak, 1972). Thus, rather than desirability *per se*, it may be that a desirable position on a socially desirable dimension, which represents benign intentions and trustworthiness, promotes reciprocity. Third, relative to honest partners, unintelligent partners elicit similar or slightly lower levels of expected cooperation, but these expectations may be held with different levels of confidence. Whereas one can count on what an honest other is going to do, it is more difficult to predict what an unintelligent other is going to do. Such unpredictability may enhance fear of exploitation, which in turn, should motivate noncooperation.

The Present Research: Design and Hypotheses

The present research was designed to control for the unpredictability explanation by using a social dilemma task in which participants were led to believe that the interdependent other made a cooperative choice. The subsequent choice by the participant, then, allows us to examine *actual reciprocity*, assessing the degree to which prosocial and proselves individuals reciprocate cooperation. This extends prior research (e.g. Van Lange & Kuhlman, 1994), in that reciprocity is not based on expectations based on levels of perceived honesty and unintelligence, but on *actual observations of the other's cooperation*. Accordingly, differential levels of confidence regarding the

probability of cooperative behaviour by honest versus unintelligent others could not underlie the current findings.¹

We manipulate personality impressions regarding the interdependent other, thereby focusing on influences of impressions of other's honesty and other's unintelligence, as these are the two personality impressions that proselves associate with cooperation (i.e. prosocials expect cooperation from honest others and unintelligent others; Van Lange & Kuhlman, 1994). In addition, we examine others perceived as intelligent because some people (prosocials, in particular) tend to associate intelligence with cooperation, thus expecting high levels of cooperation from others perceived as intelligent (Van Lange & Liebrand, 1991). Moreover, these three others (i.e. honest, intelligent, and unintelligent others) allow us to examine comparisons between not only (a) honesty and unintelligence (i.e. desirable versus undesirable on different dimensions), but also (b) between intelligence and unintelligence (i.e. desirable versus undesirable on the same dimension), and (c) between honesty and intelligence (i.e. desirable on different dimensions).²

Based on the findings of Van Lange and Kuhlman (1994), we advanced two major hypotheses. First, we predicted that, across the honest, intelligent, and unintelligent others, prosocials would exhibit greater reciprocity than proselves. Second, we predicted that prosocials would exhibit high levels of reciprocity with others perceived as honest or unintelligent, whereas proselves would exhibit substantially lower levels of reciprocity when the other is perceived as unintelligent than when the other is perceived as honest.³ In a more exploratory vein, we examine whether proselves might be inclined to exhibit relatively high levels of reciprocity with others perceived as honest (a) because such others are characterized by a desirable attribute, or (b) because honesty is inherently linked to benign intentions and trustworthiness. According to the former explanation, proselves should exhibit greater levels of reciprocity toward honest *and* intelligent others than toward unintelligent others, because both honesty and intelligence are desirable attributes. According to the latter explanation, proselves should exhibit greater levels of reciprocity toward honest others than toward unintelligent *and* intelligent others, because honesty is more strongly linked to benign intentions and trustworthiness than is intelligence (cf. Rosenberg & Sedlak, 1972).

¹Although levels of confidence in one's expectations are irrelevant to the present research, one could argue that actual cooperation by an unintelligent other would be more likely to be attributed to less intentionality (i.e. an unintelligent other does not really know what s/he is doing) than actual cooperation by an honest or intelligent other.

²We do not examine others perceived as dishonest, because neither prosocials nor proselves associate dishonesty with cooperation. Moreover, comparisons of dishonest others with each of the three others would be somewhat difficult to interpret because a dishonest other who exhibits maximal cooperation is more conflicting with *a priori* expectations of both prosocials and proselves than maximal cooperation by either of the other three others.

³Of lesser relevance, the two predictions also imply a main effect for perceptions of other's honesty, intelligence, versus unintelligence, in that across social value orientations, participants should exhibit greater reciprocity toward honest others than toward unintelligent others, with intermediate levels of reciprocity toward intelligent others.

METHOD

Participants and Experimental Design

Twenty-five students (13 men, 12 women) participated in this study. The experimental design is a 2 (social value orientation: prosocials versus proselves) by 3 (perceptions of other: honest versus intelligent versus unintelligent), with the latter factor being a within-participant variable.

Procedure

The experiment was scheduled in groups of three to six persons. After they were welcomed, each participant was seated in one of eight cubicles. The experiment began with assessing participants' *social value orientations*, using a series of nine 'decomposed games' (i.e. time 2 measurement), which were identical to the ones used in the survey conducted 6 months prior to this experiment (i.e. time 1 measurement; for more information regarding the measurement and validity of these nine decomposed games, see Van Lange, Otten, De Bruin, & Joireman, 1997). As in previous research, participants were classified if they made at least six of the nine choices consistent with one of the three social value orientations. Using these criteria, one participant could not be classified at time 2. Of the 24 classifiable participants, we identified 10 participants who held prosocial orientations at both time 1 and time 2, and 11 participants who held individualistic or competitive orientations (i.e. proself orientations) at both time 1 and time 2.⁴ These participants were included in the analyses of reciprocity, thus excluding three participants whose social value orientations 'moved' from prosocial to proself or vice versa.

Next, participants engaged in a social dilemma, using a task which was adopted from Van Lange and Kuhlman (1994). Each participant was asked to imagine that (s)he had been given four yellow (blue) chips, and that the other had been given four blue (yellow) chips. Each own chip had a value of 50 Dutch cents to the person himself or herself, and a value of 100 Dutch cents to the other (i.e. 100 Dutch cents, or a guilder, is about 60 cents in American currency). Similarly, each chip held by the other had a value of 50 cents to the other, and a value of 100 cents to the participant himself or herself. The participant's task was to decide how many of his/her four chips to give to the other. Maximal cooperation is to give four chips (i.e. joint well-being is better served by exchanging more chips), and maximal noncooperation is to give zero chips (i.e. personal well-being is better served by giving fewer chips to the other). This task was well-understood. All participants answered at least nine (out of 10) comprehension questions correctly.

⁴More precisely, 10 prosocials, six individualists, and two competitors expressed the same social value orientation at time 1 and time 2 (18 out of 24 participants who could be classified at time 2, yielding a 75 per cent consistency), indicating strong correspondence between time 1 and time 2 classification ($\chi^2 [4, N = 24] = 16.84, p < 0.001$; Gamma = 0.74, $p < 0.001$). Although sample size is small, these findings are congruent with the claim that social value orientations are robust over a substantial period of time, thereby complementing prior research which has revealed test-retest consistency over a 4- to 6-week period (e.g. Kuhlman, Camac, & Cunha, 1986).

We explained to participants that they would be paired to a number of others, and that all of these others sufficiently understood the decision task and had made a choice in the social dilemma task. Also, participants were led to believe that all of these other individuals had completed the so-called Personality Characteristics Questionnaire (PCQ), a highly reliable and valid personality questionnaire which provides measures of a number of personality characteristics. Relevant to comparisons of high-honesty and low-intelligence others, participants were paired to four others, who ostensibly had decided to give away four chips. Regarding other's honesty, one other was described by having a score in the upper 20 per cent on 'honesty', and another by having a score in the upper 20 per cent of 'sincerity' (i.e. the upper 20 per cent of the scores that are possible on this questionnaire). Regarding other's intelligence, one other was described by having a score in the lower 20 per cent on 'smartness', and another by having a score in the lower 20 per cent of 'intelligence'. Because the correlations between level of reciprocity for the two honest others, $r(21) = 0.59$, $p < 0.001$ as well as between that of the two unintelligent others, $r(21) = 0.77$, $p < 0.001$ were quite substantial, we calculated the means across honesty and sincerity and across low scores for intelligence and smartness. As noted earlier, we are also interested in comparing (a) high-honesty with high-intelligence others, and (b) low-intelligence with high-intelligence others. Accordingly, participants were also paired to another person who ostensibly had decided to give away four chips, and was described by having a score in the upper 20 per cent on 'smartness'.⁵

These five others were given a random position in a list of total 16 others so as to minimize the possibility of reactivity (i.e. to distract them from comparing honest with intelligent and/or unintelligent others) and to make them believe that individuals may make choices other than giving away all four chips. The remaining 11 others ostensibly made different choices (some of them gave away zero, two, or four chips) and were described by high or low scores on several dimensions (e.g. adventurousness, artistic ability, patience). Finally, individuals were debriefed, thanked for their participation, and paid 12.50 Dutch guilders (which is about \$6.00 in American currency).

RESULTS

Reciprocal cooperation was analysed in a 2 (social value orientation: prosocials versus proselves) by 3 (impression: honest versus intelligent versus unintelligent) ANOVA, the latter variable being a within-participant factor. As predicted, prosocials ($M = 3.80$) exhibited greater reciprocity than did proselves ($M = 1.91$), as evidenced by a main effect for social value orientation, $F(1,19) = 27.95$, $p < 0.001$. A main effect for impression, $F(2,18) = 10.14$, $p < 0.001$, revealed that another described as honest ($M = 3.29$) elicited greater levels of reciprocity than did another described as unintelligent ($M = 2.38$), with intermediate levels of reciprocity for another described as intelligent ($M = 2.76$).

⁵Impressions of other's intelligence were measured with only one description (i.e. 'smartness') because our primary focus was on comparisons of honest versus unintelligent others, both of which were measured with two descriptions.

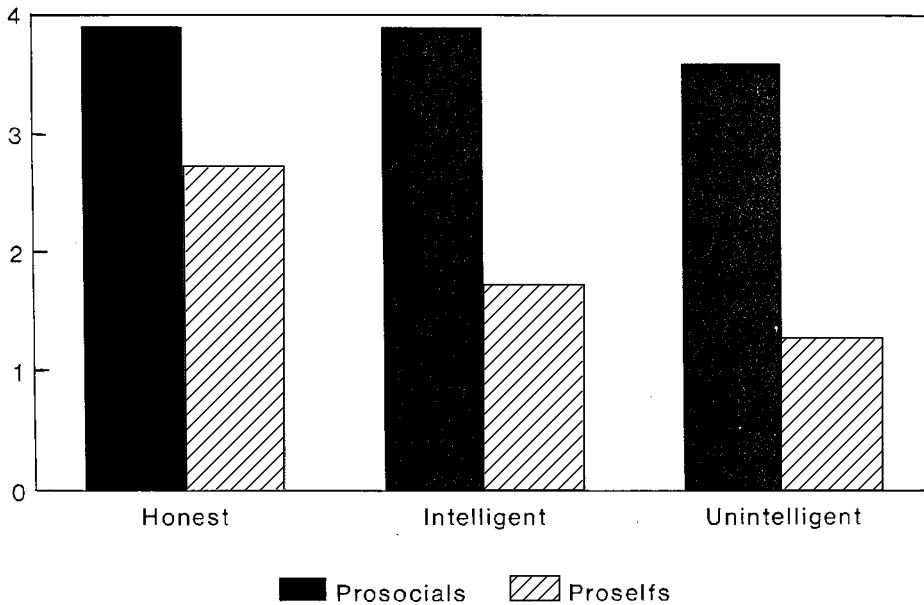


Figure 1. Reciprocal cooperation among prosocials and proselves with others perceived as honest, intelligent, or unintelligent

As can be seen in Figure 1, an interaction of social value orientation and impression, $F(2,18) = 6.45$, $p < 0.01$, revealed that proselves exhibited greater reciprocity toward another described as honest ($M = 2.73$) than toward another described as intelligent ($M = 1.73$) or another described as unintelligent ($M = 1.27$). In contrast, prosocials exhibited high levels of cooperation with another described as honest ($M = 3.90$), with another described as intelligent ($M = 3.90$), as well as with another described as unintelligent ($M = 3.60$). Indeed, specific contrasts revealed that the effect for impression was significant for proselves, $F(1,19) = 15.34$, $p < 0.001$, but failed to be significant for prosocials, $F(1,19) = 0.59$, n.s. (also, none of the pairwise comparisons among prosocials were significant). Subsequent pairwise comparisons among proselves revealed that levels of reciprocity were significantly greater for (a) honest versus unintelligent others, $F(1,10) = 9.41$, $p < 0.05$, and for (b) honest versus intelligent others, $F(1,10) = 7.10$, $p < 0.05$. However, the contrast of intelligent versus unintelligent others was not significant for proselves, $F(1,10) = 0.43$, n.s. These analyses indicate that it is impressions of other's honesty, rather than other's intelligence (or other's unintelligence) that promote reciprocity among proselves.

The interaction of social value orientation and impression was further explored by three 2 (social value orientation) by 2 (impression) analyses of variance, focusing thereby on the contrasts of (a) honest versus unintelligent others (b) honest versus intelligent others, and (c) intelligent versus unintelligent others. These analyses revealed significant interactions of social value orientation with the contrasts of both (a) honest versus unintelligent others, $F(1,19) = 4.60$, $p < 0.05$ and (b) honest versus intelligent others, $F(1,19) = 5.69$, $p < 0.05$. The interaction of social value orientation and the contrast of intelligent versus unintelligent others was absent, $F(1,19) = 0.04$,

n.s. These findings indicate that differences between prosocials and proselves in their levels of reciprocity are significantly greater when the other is perceived as either intelligent or unintelligent than when the other is perceived as honest.

DISCUSSION

Several studies have revealed that tendencies toward reciprocity shape cooperative behaviour in social dilemmas (e.g. Komorita *et al.*, 1991), and that prosocials are more strongly inclined to reciprocate cooperation than are individualists and competitors (e.g. Kelley & Stahelski, 1970; Kuhlman & Marshello, 1975). The present findings complement this literature by indicating that social value orientation *in combination with* impressions of other's honesty, intelligence, and unintelligence are important to understanding reciprocity in social dilemmas. Prosocials reciprocate cooperation with others perceived as honest, intelligent, or unintelligent, suggesting that their reciprocity does not strongly depend on the impressions of the other. In contrast, proselves tend to reciprocate cooperation when the other is perceived as honest, and substantially less so when the other is perceived as intelligent or unintelligent. Accordingly, it is not simple desirability that promotes reciprocity among proselves. Rather, proselves' willingness to reciprocate is primarily promoted by impressions of honesty and sincerity, which are strongly linked to faith in other's benign intentions and trustworthiness (cf. Rosenberg & Sedlak, 1972).

The present findings are important for at least two reasons. First, prior research has revealed that, when participants receive no information about other's personality characteristics, proselves do not resist the temptation to exploit others who exhibit unconditional forms of cooperation (e.g. Kuhlman & Marshello, 1975). The current findings complement and extend this work by indicating that proselves would be more likely to resist such temptation, if they had sufficient faith in other's benign intentions and trustworthiness. While proselves to some extent develop such benign impressions of cooperative others, they also believe that such others are quite unintelligent and weak (e.g. Liebrand *et al.*, 1986). In light of the present findings, it is plausible that the formation of these latter impressions carry greater weight than the former, more benevolent impressions, in the tendency of proselves to take advantage of cooperative others.

Second, the extant literature of impressions has focused primarily on the formation, organization, and maintenance of personality impressions, with relatively little attention for the social-interactional consequences of such impressions in settings of interdependence. This literature has revealed that individuals tend to organize their impressions along dimensions of social desirability (i.e. socially good or bad) and intellectual desirability (i.e. intellectually good or bad; Rosenberg & Sedlak, 1972), which are similar to the dimensions of 'other-profitability' and 'self-profitability' (Peeters & Czapinski, 1990). The present findings indicate that it is impressions of social desirability (or other-profitability) rather than intellectual desirability (or self-profitability) that promote reciprocity among proselves. Such findings help integrate two distinct lines of research (i.e. impression formation and reciprocal cooperation) and support the validity of extant models of interpersonal impressions in an actual interaction context.

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